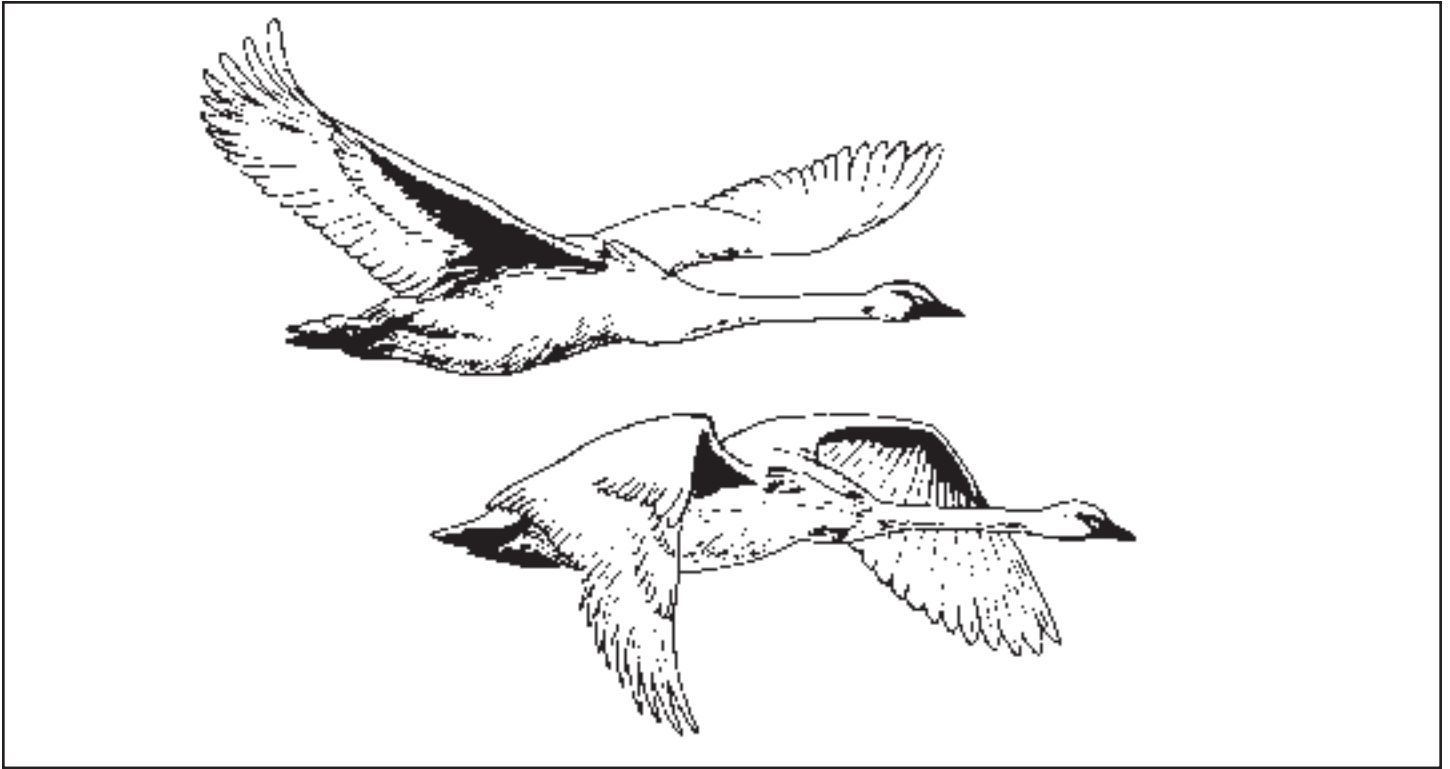


Tundra Swan

(*Cygnus columbianus*)



Like all swans, the Tundra Swan is supremely graceful. This large white bird is the most common of the three species of swans found in North America. Twice a year, Tundra Swans migrate over 3,725 miles (~6,000 km) round-trip between breeding areas in Alaska and the Canadian Arctic and wintering areas in eastern and western North America with upwards of 60,000 individuals migrating through Utah.

Description

The Tundra Swan is a large bird with white plumage and black legs, feet, and bill. However, when feeding in iron-rich areas, the feathers on the head and neck of individuals may take on a reddish tinge. Most (but not all) adult tundra swans have a yellow patch or “eye lore” between their eye and the base of their bill.

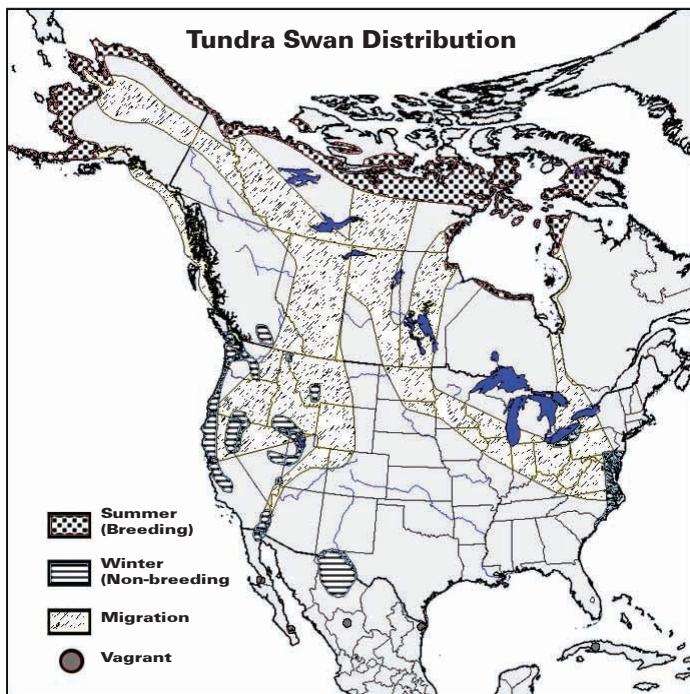
The adult male weighs on average about 16 pounds (7.2 kg) and can measure four feet (1.3 m) from bill to tail. The adult female is about the same size as the male but weighs slightly less, about 14 pounds (6.3 kg). Yearlings are smaller than the adults and have gray plumage, pinkish bills with black tips, and pink legs and feet. It takes at least two years for adult plumage to grow in.

Tundra Swans are striking in both appearance and sound and were formerly known as the “whistling swan.” In 1983, their name was changed in the American Ornithologists' Union's Checklist to reflect the species' breeding habitat in the tundra regions of Alaska and Canada.

Distribution and population

There are two populations of Tundra Swans in North America — one in the east and one in the west. In summer the swans breed in the Canadian Arctic and in Alaska. The eastern population winters along the Atlantic Coast on Chesapeake Bay, in Maryland and in North Carolina. The western population breeds on the west coast of Alaska and winters on the Pacific Coast and in the Central Valley of California.

In Utah, the calls of wild swans can be heard echoing across marshes during spring, fall and winter. Western populations arrive in the Great Salt Lake area in late October and begin departing by early December *en route* to their wintering grounds. In spring they return and by late March, have departed from Utah toward their summer breeding grounds in Alaska and Canada.



Habitat

Breeding habitat of the Tundra Swan consists of arctic lakes, ponds and pools primarily in coastal delta areas and within broad drainage basins. During migration, they frequent shallow ponds, lakes and riverine marshes, as well as harvested agricultural fields and fields growing winter cereal grain. In winter, they inhabit shallow estuaries along the coasts, freshwater lakes, ponds and rivers, and also forage extensively in agricultural fields.

Life history and behavior

Tundra Swans begin breeding when they reach their fourth or fifth year. A year before breeding though, they begin forming pairs and “go steady,” selecting and defending a territory without actually nesting. Courtship and pairing of young adult birds is in full swing in late winter and continues through the spring migration. Pairs form strong bonds that last for life.

Adults, already paired, reinforce their bond by vocal and visual displays. The most spectacular of these is the so-called “victory display” in which male and female face each other, extend and wave their wings slowly, bow their heads and necks forward and backward, and, in duet, produce a formalized sequence of loud, melodious sounds. Patient swan observers in Utah who are willing to spend time observing swans have witnessed this courtship display during the spring migration. When thousands of birds are concentrated at a migratory staging point, the level of sound is very high, particularly at night when much of the social activity takes place.

Tundra Swans spend the summer on the tundra of the Canadian Arctic and Alaska. Pairs begin to nest in late May or early June before the snow is off the tundra, while many of the lakes are still frozen. They are solitary nesters and each pair defends a large territory that may be more than 0.8 square miles (2 km²). The nest is a large conical mound of sticks, often placed on a hummock and lined with moss, sedges, and grasses. It is usually quite close to a tundra pond or lake that is large enough to provide a good feeding and loafing area for the young but not too large to defend against other breeding pairs. Nests in favorable locations tend to be reused each year.

The eggs of Tundra Swans are cream-colored and average 4.2 inches in length (10.7 cm). A clutch of four eggs is normal, though in exceptionally warm, favorable springs, females (pens) often lay five or six eggs. An unusually cold and snowbound spring, on the other hand, may inhibit nesting for that year. Not all adult pairs nest every year.

Incubation begins when the final egg is laid and lasts about 32 days. Only the female incubates the eggs, but the male (cob) remains close by, guarding the nest site and defending the territory. If the eggs are destroyed, reneeding will not take place.

The downy ash-gray young (cygnets) emerge in early July and weigh about 6.5 ounces (184 g). They are soon able to forage for themselves as both parents help them find suitable plant food around the margins of the pond. They need to be brooded frequently to protect them from the cold and the onslaughts of myriads of mosquitoes. The early casualty rate among cygnets is quite high, chiefly due to cold or starvation.

The family remains on the nesting territory during August, when the adults undergo a molt period; they are flightless for several weeks, until the molted primary wing feathers are replaced by new ones. If all goes well, the cygnets grow rapidly and in September, after about 70 days, their weight may be 28 times the hatching weight. This growth rate is necessary, because by early September the cygnets must be fully feathered and able to fly to larger lakes that freeze over more slowly.

At these lakes they encounter young, non-breeding birds of the previous year and unsuccessful nesters or unpaired adults that have spent the summer in small groups in favorable feeding locations. From these lakes, the flocks begin the early stages of migration as freeze-up approaches. An early winter will doom cygnets not yet ready to fly south.

Even after they have returned to their wintering range, birds of the eastern population in the northern part of Chesapeake Bay may face a prolonged freeze in a severe winter.

Rather than heading south to more temperate conditions, they sometimes spend most of this time sleeping on the ice, their heads drawn back under their wings. Many birds often die, particularly young birds.

Food habits

Tundra Swans feed mainly on the seeds, stems, roots and tubers of aquatic plants that grow at shallow depths in fresh, brackish, or salt water. They reach this food by extending the head and neck downward, frequently tipping the body but seldom completely submerging. On the Atlantic Coast the swans vary their diet with mollusks, such as mussels and clams. Over the past 20 to 30 years, Tundra Swans have begun to feed extensively on grains, such as corn and wheat that are left on the ground after the harvest. After the heavy winters of 1983-84 that caused the Great Salt Lake to flood and kill the sago pondweed tubers, many swans were observed feeding in agricultural fields in Utah. Currently, most swans passing through Utah feed in aquatic areas but do use flooded agricultural areas once they reach their wintering areas in California.

Swans and people

The elegance and beauty of wild swans has inspired people for generations. Great works of art include Swan Lake and the classic "Ugly Duckling." In the 1970s and 80s the Tundra Swan was used as the symbol of the Utah Division of Wildlife Resources. Truly, wild swans contribute to the quality of life for people in Utah! How will wild swans inspire you?

Places to observe Tundra Swans in Utah include: Ogden Bay Waterfowl Management Area near Hooper, the Bear River Migratory Bird Refuge near Brigham City and Cutler Reservoir in Cache County.

Management and conservation

Like all waterfowl, Tundra Swans are protected under federal law and the Utah Wildlife Code. The Utah Division of Wildlife Resources (UDWR) is the guardian and trustee of wild swans and all of Utah's wildlife. Major efforts to pro-

tect swans by the UDWR are focused on habitat protection and enforcement of wildlife laws that protect swans. UDWR also conducts an annual Swan Day Celebration in northern Utah each March to help people more fully understand and enjoy wild swans.

In Utah, hunters can apply for a permit to hunt Tundra Swans in the fall of each year. An online education course is conducted to ensure that swan hunters follow and understand swan conservation measures.

Tundra Swans have few natural enemies other than humans. Golden Eagles, jaegers, wolves, foxes, and bears no doubt take some toll on eggs and young on the tundra, but their influence on the swan population as a whole is very small. An alarmed adult Tundra Swan is quite a formidable opponent, and a pair can usually fend off most predators.

The principal factor limiting Tundra Swan populations is the adverse weather swans often face on all parts of their range, but particularly on the breeding grounds. A late spring may prevent nesting; an early freeze-up may cause heavy casualties among the young. Consequently, the size of wintering populations may swing widely, with the number of young birds varying from less than 10% to more than 30% of the total. The western population is exposed to a somewhat less severe climate in both the breeding and wintering ranges. This may explain why, although the range of the western group is smaller, the two populations are roughly the same size.

Though Tundra Swans are rugged, long-lived birds, accustomed to adversity, they tread an ecological tightrope. The advantages provided by isolated breeding grounds are offset by a long migration route and a short breeding season. Human development throughout many areas of the Tundra Swan's range has been extensive. In addition, water pollution in Chesapeake Bay and the lower Great Lakes, and water diversion east of the Rockies may be reducing food supplies on the wintering grounds. Drainage of sloughs on the prairies and changing water levels and flow rates due to dam construction and water diversion have impacted all the major staging areas of Tundra Swans.



The change in the feeding habits of Tundra Swans poses an important question. Are the birds switching from aquatic plants to field grains because they prefer this newly discovered food source, or is the destruction and pollution of many marsh areas forcing them to find other food sources? In either case, their increasing use of agricultural crops may leave them vulnerable to sudden changes in crop production. They have shown they are adaptable, at least in the short term, by changing their diet from aquatic plants to agricultural plants. If these two food sources diminish will they be able to find and adapt to another food source? These and other related questions will need to be investigated to better understand impacts to Tundra Swan populations and help ensure these magnificent birds will continue to grace Utah's landscape for generations to come.

What you can do

If you are interested in helping populations of Tundra Swans, consider:

- Purchasing a federal duck stamp. Revenues from the sale of duck stamps are used to acquire and maintain habitats for swans and other wildlife.
- Contributing to wildlife through the Wildlife Tax Check-off on the Utah State Income Tax form or by making a contribution directly to the Utah Division of Wildlife Resources, 1594 W. North Temple, Suite 2110, Salt Lake City, UT 84116.
- Joining waterfowl or other bird conservation organizations such as Ducks Unlimited, an international organization dedicated to the conservation of waterfowl. Contact Ducks Unlimited at (800) 45DUCKS for membership information or visit their website at <http://www.ducks.org>.
- Actively supporting local, state and national efforts to preserve and protect wetlands and riparian areas as habitat for swans and other wetland species.

Additional reading

American Ornithologists' Union, <http://www.aou.org/>

Bellrose, Frank D. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, PA. 1976.

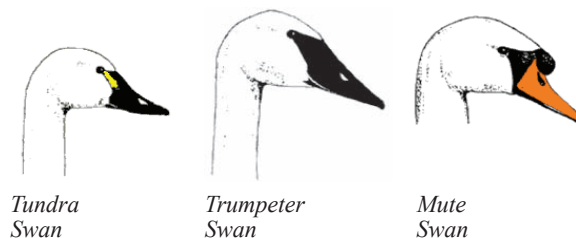
Limpert, R. J. and S.L. Earnst. Tundra Swan (*Cygnus columbianus*). In The Birds of North America, No. 89. (A. Poole and F. Gill Eds.). Washington, D.C. 1994.

Palmer, Ralph S., Ed. Handbook of North American Birds, Volume 2: Waterfowl (Part 1). Yale University Press, New Haven, CT. 1976.

Related species

There are seven species of swans in the world. Two of these, the Tundra Swan, *Cygnus columbianus* and the Trumpeter Swan, *C. buccinator*, are native to North America; their respective populations comprise 140,000 and 16,000 individuals. One nonnative species, the Mute Swan, *C. olor*, is also found in North America. People brought Mute Swans from Europe and Asia for ornamental display in parks and zoos, and now this species is found in the wild in certain parts of the continent.

Although Trumpeter Swans are slightly larger than Tundra Swans, it is very difficult to tell the two species apart. At close range, a small yellow mark at the base of the bill, close to the eye, can be seen on the Tundra Swan. There is no such mark on the Trumpeter Swan. The Trumpeter Swan also has a straight culmen (ridge running down top/middle of bill), the eye is enclosed by black, and the white feathering on the head extends in a "v" shape into the dark bill. The adult Mute Swan can be distinguished from the adult Tundra Swan by its orange and black, knobby bill.



The most distinctive difference between the Trumpeter Swan and the Tundra Swan is the voice. The Trumpeter Swan has a deep, resonant, brassy, trumpet-like voice; the voice of the Tundra Swan is softer and more melodious. The species' former name "Whistling Swan" referred to the sound made by the slow, powerful beating of the wings in flight, and not to the voice of the bird. The call is pitched lower than a whistle and more closely resembles a blowing or tearing sound.

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Compiled by Phil Douglass, Conservation Outreach Manager, Northern Region, Utah Division of Wildlife Resources; Portions of this document were taken from: "Tundra Swan," Hinterland Who's Who series, Environment Canada, 1995. (Used with the permission of the Minister of Public Works and Government Services, 2010);

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